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EXAMINER	
HUANG, WEN WU	
ART UNIT	**PAPER NUMBER**
2618	

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/502,502	LU ET AL.	
	Examiner	Art Unit	
	Wen W. Huang	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Leung et al. (US PUB NO. 2003/0087653 A1; hereinafter "Leung 653)

Regarding **claim 1**, Leung 653 teaches a method for providing real-time broadcast service in a mobile communication network (see Leung 653, para. [0008]), comprising:

A. linking real-time broadcast service to the mobile communication network (see Leung 653, fig. 5, components 326, 324 and 320; para. [0070], lines 4-5); and

B. adding a broadcast service hierarchy for specially providing real-time broadcast service in an radio access network (see Leung 653, para. [0036], lines 3-7) having an original service hierarchy for providing voice communication (see Leung 653, para. [0039], lines 3-5);

real-time broadcasting the real-time broadcast service to mobile terminals via air interface of the mobile communication network (see Leung 653, para. [0047], lines 6-13 and para. [0049], lines 1-2) through setting special broadcast resources (see Leung 653, para. [0048]);

the mobile terminal (see Leung 653, fig. 1, component 106) working in either of an original service hierarchy mode (see Leung 653, para. [0039], lines 3-5) and a broadcasting service hierarchy mode (see Leung 653, para. [0047]) which can be switched with each other (see Leung 653, para. [0035], lines 18-20).

Regarding **claim 2**, Leung 653 also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 1, step A comprising:

transmitting the content information of real-time broadcast service to an information transmitting server (see Leung 653, para. [0072], lines 1-2); then accessing the content information of real-time broadcast service to the mobile communication network by the information transmitting server (see Leung 653, para. [0072], lines 3-4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 3-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung 653 as applied to claim 1 above, and further in view of Nakagawa et al. (US. 6256,508 B1; hereinafter "Nakagawa") and Leung (US PUB NO. 2003/0078044 A1; hereinafter "Leung 044")

Regarding **claim 3**, Leung 653 also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 1, under the condition that special carrier resources are adopted as special broadcast resources, step B further comprising:

under the broadcast service hierarchy mode, the mobile terminal staying in the cell of broadcast service hierarchy (see Leung 653, para. [0043], lines 1-2) and monitoring the paging procedure (see Leung 653, para. [0107], lines 10-11).

Leung 653 is silent to teaching that comprising:

setting only independent down link carrier frequency in the added broadcast service hierarchy for specially providing real-time broadcast service;

dividing the broadcast service hierarchy into cells where adjacent cells employ different scrambling codes and defining multiple cells into one location area;

under the broadcast service hierarchy mode, the mobile terminal solely controlling the cell handoff when the terminal moves among cells. However, the claimed limitation is well known in the art as evidenced by Nakagawa and Leung 044.

In the same field of endeavor, Nakagawa teaches a method comprising:

setting only independent down link carrier frequency in the added broadcast service hierarchy for specially providing real-time broadcast service (see Nakagawa, fig. 4, col. 6, lines 6-8);

dividing the broadcast service hierarchy into cells (see Nakagawa, fig. 1, components A-G) where adjacent cells employ different scrambling codes (see Nakagawa, fig. 4; "ss method for local area broadcasting"; col. 6, lines 20-22) and defining multiple cells into one location area (see Nakagawa, fig. 4, "wide area broadcasting").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leung 653 and the teaching of Nakagawa in order to avoid RF interference (see Nakagawa, col. 2, lines 23-25).

The combination of Leung 653 and Nakagawa is silent to teaching that, under the broadcast service hierarchy mode, the mobile terminal solely controlling the cell handoff when the terminal moves among cells. However, the claimed limitation is well known in the art as evidenced by Leung 044.

In the field of endeavor, Leung 044 teaches a method comprising under the broadcast service hierarchy mode, the mobile terminal solely controlling the cell handoff when the terminal moves among cells (see Leung 044, para. [0057], lines 1-10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leung 653 and Nakagawa with the teaching of Leung 044 in order to implement handoff in a broadcasting system (see Leung 044, para. [0011]).

Regarding **claim 4**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 3, further comprising:

setting broadcast channel for broadcasting corresponding cell information (see Leung 653, para. 0053) and paging channel for paging mobile terminals under the broadcast service hierarchy mode in the cell of broadcast service hierarchy (see Leung 044, para. [0057], lines 1-10).

Regarding **claim 5**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 4, wherein said cell information includes location area code and paging channel configuration information of the cell in broadcast service hierarchy, and the frequencies, scrambling codes (see Leung 653, para. [0051], lines 12-15 and 19-25), Random Access Channel (RACH), AICH public channel relating to RACH and Forward Access Channel (FACH) of the adjacent cells in the original service hierarchy (see Leung 653, para. [0053]).

Regarding **claim 6**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 3, wherein the scrambling codes in the broadcast service hierarchy and those in the original service hierarchy are either the

same or different; the location division for cells of the broadcast service hierarchy and that for cells of the original service hierarchy is either superposed or not (see Nakagawa, fig. 1 and fig. 4).

Regarding **claim 7**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 3, wherein

the cell handoff includes location update (see Leung 653, para. [0107], lines 5-6) which is triggered when the mode of mobile terminal is switched between the broadcast service hierarchy mode and the original service hierarchy mode (see Leung 653, para. [0107], lines 10-11), and when location area changes under the broadcast service hierarchy mode (see Leung 653, para. [0107], lines 3-4).

Regarding **claim 8**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 7, wherein the step of triggering location update when location area changes under the broadcast service hierarchy mode comprises:

the mobile terminal obtaining information about the cell in the original service hierarchy, which is adjacent to the current cell in the broadcast service hierarchy, from the broadcast information in broadcast channel in the broadcast service hierarchy (see Leung 653, para. [0052], lines 12-25), finding a cell in the original service hierarchy

where the terminal can stay, and sending a random access request utilizing the Random Access Channel (RACH) in the cell of the original service hierarchy (see Leung 044, para. [0057], lines 1-10); after receiving the AICH information from the cell of the original service hierarchy, the mobile terminal tuning the receiving frequency to the down-link carrier frequency, starting the search and synchronization for the current cell of the broadcast service hierarchy (see Leung 044, para. [0058]), meanwhile sending a message containing location update information to the network utilizing the up-link carrier frequency in the original service hierarchy, and waiting to receive location update confirming message at the cell of the current broadcast service hierarchy (see Leung 044, para. [0054]).

Regarding **claim 9**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 3, wherein the step of monitoring the paging channel under the broadcast service hierarchy mode is the same as that under the original service hierarchy mode, comprising:

the network selecting a cell in corresponding location area according to the received location information of the mobile terminal, and sending down-link paging information according to broadcast service carrier frequency or original service carrier frequency, respectively corresponding to the broadcast service mode or the original service mode (see Leung 653, para. [0107], lines 10-13).

Regarding **claim 10**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 3, under the condition that special carrier resources are adopted as special broadcast resources, further comprising:

the mobile terminal switching the mode from the broadcast service hierarchy mode to the original service hierarchy mode, making a reply or initiating a call through the original service hierarchy (see Leung 653, para. [0107], lines 10-13).

Regarding **claim 11**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 10, wherein the step of the mobile terminal making a reply or initiating a call through the original service hierarchy further comprises:

sending information about the adjacent cells in the original service hierarchy by the broadcast service hierarchy utilizing the broadcast channel (see Leung 653, para. [0108]).

Regarding **claim 12**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 3, wherein

the mobile terminal shares one set of receiving system and synchronizing system under the broadcast service hierarchy mode and the original service hierarchy mode (see Leung 653, para. [0053]).

Regarding **claim 13**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 3, wherein

the mobile terminal utilizes respective receiving systems and shares one set of synchronizing system under the broadcast service hierarchy mode and the original service hierarchy mode (see Leung 653, para. [0053]).

3. Claims 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung 653 (and US. 5,101,501 incorporated by Leung 653) as applied to claim 1 above, and further in view of Nakagawa.

Regarding **claim 14**, Leung 653 teaches the method for providing real-time broadcast service in a mobile communication network according to claim 1, under the condition that special scrambling code resources are adopted as special broadcast resources, step B further comprising:

the working mode of mobile terminal keeps unchanged for the original service, pilot channel of the original cell is shared and real-time broadcast service is supported under both idling mode and connecting mode (see Leung 653, para. [0053]).

Leung 653 is silent to teaching that comprising:

setting independent down link special scrambling codes in the added broadcast service hierarchy for specially providing real-time broadcast service;

wherein the locations of cells of the broadcast service hierarchy and those of the original service hierarchy are superposed so as to form the structure of the cell of the original service hierarchy plus the cell of the broadcast service hierarchy, and each cell utilizes the same special down link scrambling code and the same special broadcast channel code for transmitting only real-time broadcast information;

said down link special scrambling codes for real-time broadcast service are added only in macro cells but micro cells or pico cells. However, the claimed limitation is well known in the art as evidenced by Nakagawa.

In the same field of endeavor, Nakagawa teaches a method comprising:

setting independent down link special scrambling codes in the added broadcast service hierarchy for specially providing real-time broadcast service (see Nakagawa, fig. 4, col. 6, lines 10-15);

wherein the locations of cells of the broadcast service hierarchy and those of the original service hierarchy are superposed so as to form the structure of the cell of the original service hierarchy plus the cell of the broadcast service hierarchy (see Nakagawa, fig. 1), and each cell utilizes the same special down link scrambling code and the same special broadcast channel code for transmitting only real-time broadcast information (see Nakagawa, fig. 4, "wide area broadcasting");

said down link special scrambling codes for real-time broadcast service are added only in macro cells but micro cells or pico cells (see Nakagawa, col. 7, lines 39-42).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leung 653 and the teaching of Nakagawa in order to avoid RF interference (see Nakagawa, col. 2, lines 23-25).

Regarding **claim 15**, the combination of Leung 653 and Nakagawa also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 14, wherein the step of setting independent down link special scrambling codes in the broadcast service hierarchy is performed through adding a scrambling operation with the down link special scrambling codes in the base station sender of each cell in the original service macro cell covering hierarchy (see Leung 653, para. [0055]); the information of the broadcast service hierarchy and that of the original service hierarchy either share the same power amplifier or utilizes respective power amplifiers (see Leung 653, para. [0053] and Nakagawa fig. 14A, component 143).

Regarding **claim 16**, the combination of Leung 653 and Nakagawa also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 15, wherein processing of the sender includes modulation and spectrum spreading for original service and that for real-time broadcast service (see Nakagawa fig. 14A, component 143); the modulation and spectrum spreading for

original service includes source encoding, channel encoding, Quaternary Phrase-Shift Keying (QPSK), spectrum spreading and scrambling the spectrum spread results utilizing the down-link scrambling codes of each cell for the original service (see Leung 653, para. [0040]); the modulation and spectrum spreading for real-time broadcast service includes source encoding, channel encoding, QPSK, spectrum spreading and scrambling the spectrum spread results utilizing the down-link special scrambling codes for the real-time broadcast service (see Leung 653, para. [0053]).

Regarding **claim 17**, the combination of Leung 653 and Nakagawa also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 14, wherein the demodulation unit of RAKE receiver of the mobile terminal adopts down-link special scrambling codes for specially receiving real-time broadcast service; channel decoding and source decoding is implemented respectively for the original service and real-time broadcast service after the signals pass the RAKE receiver; the channel code of RAKE receiver is the special broadcast channel code, namely down-link special scrambling code (see Leung 653, para. [0043], lines 9-13; and see U.S. Pat. No. 5,101,501 incorporated by Leung 653; fig. 2, components 40 and 42).

Regarding **claim 18**, the combination of Leung 653 and Nakagawa also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 14, wherein said structure of the cell of the original service hierarchy plus the cell of the broadcast service hierarchy is that range and location division of the

cell of the original service hierarchy plus broadcast service hierarchy is the same as that of the macro cell of the original service hierarchy (see Leung 653, fig. 1).

Regarding **claim 19**, the combination of Leung 653 and Nakagawa also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 14, wherein the mobile terminal supports real-time broadcast service under both idle mode and connecting mode (see Leung 653, para. [0110]), the method further comprising:

keeping the mobile terminal under idle mode for the original service when the mode of the mobile terminal is switched to broadcast mode from idle mode (see Leung 653, para. [0110]);

when the mobile terminal is located in a macro cell, according to the channel estimation result for the public pilot frequency of this cell and the channel estimation result for the public pilot frequency of one or multiple adjacent cells with powerful signals, merging the received signals of multi cells and demodulating the signals on special broadcast channel (see Leung 653, para. [0043]);

the mobile terminal selecting and reselecting cells, implementing location update and receiving paging information in terms of the process of original service (see Leung 653, para. [0107]);

when the mobile terminal is located in a micro cell or a pico cell, according to the channel estimation result for the public pilot frequency of one or multiple adjacent cells

with powerful signals, merging the received signals of multi cells and demodulating the signals on special broadcast channel (see Leung 653, para. [0043], lines 9-13);

the mobile terminal selecting and reselecting cells, implementing location update and receiving paging information in terms of the process of original service (see Leung 653, para. [0107] and para. [0040]).

Regarding **claim 20**, the combination of Leung 653 and Nakagawa also teaches the method for providing real-time broadcast service in a mobile communication network according to claim 14, further comprising:

the mobile terminal evaluating the interference value from the added down-link special scrambling codes to service channels through the demodulated special broadcast channel data and the known information about channel transmission condition, scrambling code and channel code, and subtracting this interference value from the received signal (see Leung 653, para. [0043]; and see U.S. Pat. No. 5,101,501 incorporated by Leung 653; fig. 2, component 48).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen W. Huang whose telephone number is (571) 272-7852. The examiner can normally be reached on 10am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay A. Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

wwh

6/15/06

NAY MAUNG
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